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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/982,221 | 10/18/2001 | Dinesh Gupta | FI9-98-205DIV | 8019 |

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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT PAPER NUMBER

2827

DATE MAILED: 03/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,221

Applicant(s)

GUPTA ET AL.

Examiner

Ishwar B Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19 and 21-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because figures are improperly cross hatched (fig. 3A-C). The cross hatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Thornberg (US Patent 5,360,948).

Regarding claim 19, Thornberg discloses a multi-layer substrate structure (programmable multi-chip modules having two or more conductor planes, column 1, line 5-10) comprising:

at least one layer having generic electrical features altered to customize said layer, wherein said electrical features include vias, wherein said vias are selectively

filled with one of a conducting material and an insulating material layer (signal layers 100 and 200 with signal path 102 and 202, see figure 4, column 3, line 5-30 with closed via, filled with conducting material and open via, as good as filled with insulating material).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3/6/02
5. Claims 21-²⁵~~27~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornberg (US Patent 5,360,948) as applied to claim 1 above and further in view of Evans et al., (US Patent 6,255,602, hereafter Evans).

Regarding claim 21, though Thornberg does not explicitly disclose the electrical features include a wiring pattern having portions selectively removed. Customizing by removing such electrical pattern is well known in the art. Evans et al., disclose one such universal circuit board customized by removing wiring pattern. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the circuit board of Thornberg with removable wiring pattern in order to have further flexibility in having additional customizations for various different modifications.

Regarding claims 22-25, the modified circuit board of Thornberg discloses all the features of the claimed invention as shown above including open or close via as

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required in the respective layers as disclosed by Thornberg or removing the wiring pattern as needed in various layers as disclosed by Evans.

6. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Thornberg and Evans, as applied to claims 19, 21-25 above, and further in view of Seki et al., (US Patent 5,277,929, hereafter Seki).

Regarding claims 26-28, though the combination of Thornberg and Evans does not disclose the via with a cap. The via with a cap is disclosed by Seki for selectively filling the via in the process and insulating pastes are known in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the modified circuit board of Thornberg with conductive via with a cap instead of the open via as taught by Seki in order to get the desired connection / disconnection for customizing the board with more efficiency as the vias already filled with conductive material, made non conductive by mask, can be made conductive by just removing the mask.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gupta et al., Janai et al., Smith, H. Du Val Jr. et al., Potter et al., DiStefano et al., Sommerfeldt et al., and Nathan et al. disclose customizable circuit board similar to applicant's claimed invention.

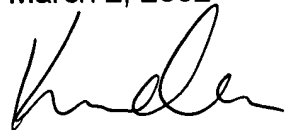
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar B Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave L Talbott can be reached on (703) 308 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

ibp
March 2, 2002



Klunes
Primary Examiner